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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,052	12/02/2003	James G. Shelnut	51256	2612
7590 06/28/2005				
EDWARDS & ANGELL, LLP		EXAMINER		
P.O. Box 9169		PALMER, PHAN T H		
Boston, MA 02209				
		ART UNIT	PAPER NUMBER	
		2874		

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,052

Applicant(s)

SHELNUT ET AL.

Examiner

PHAN T.H. PALMER

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Phan T. H. Palmer
PHAN T. H. PALMER
PRIMARY EXAMINER

06/05/2005

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05/04, 06/04, 10/04.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's cooperation is requested in correcting any error of which applicant may become aware in the specification.

Information Disclosure Statement

2. The information disclosure statement submitted on May 12, 2004, and June 17, 2004, and October 28, 2004, has been considered by the examiner and made of record. See attached form PTO-1449.

Drawings

3. This application has been filed with formal drawings.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 13, 15, 16, 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. (the article "SILICA-BASED CIRULAR CROSS-SECTIONED CHANNEL WAVEGUIDES" submitted by the Applicant).

Sun et al discloses a method of forming rounded core optical waveguides, comprising: providing a substrate with a lower cladding layer thereon, forming a core layer over the lower cladding, reactively etching the composite structure to further reveal the core, and then heating the waveguide above the core softening temperature so that the surface tension of the glass functions to round the core. The refractive index of the core is greater than that of the cladding. Because applicant's claim 11 is written in "comprising" language, the etching of Sun et al is of no consequence. The claimed method is fully disclosed in the reference.

With regard to claim 13, the method of forming an optical waveguide, wherein the waveguide core structure is formed by depositing a waveguide core layer over the cladding layer, forming an etching mask over a portion of the waveguide core layer, and etching exposed portions of the waveguide core layer, is disclosed in Sun et al reference (the etching step).

With regard to claim 15, the method of forming an optical waveguide, wherein the waveguide core structure comprises at least one material chosen from polyamides, polyimides, polytmethlacrylates, polyurethanes, polycarbonates, epoxies, polysiloxanes, polysilsesquioxanes, norbonenes silicates, SOL-Gels, silicon oxides, silicon nitrides, silicon oxynitrides, and doped glasses, is disclosed in Sun et al reference (Sun et al used doped glasses).

With regard to claim 16, the method of forming an optical waveguide, further comprising forming a second cladding layer over the waveguide core structure and the other cladding layer, is disclosed in the Sun et al reference (Sun et al forms a sputtered over cladding (page 239)).

Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by Keyworth et al. (5,534,101).

Keyworth et al discloses in figures 3, 4, and 11, a method of forming a rounded optical waveguide on a substrate, the method comprising forming a lower cladding layer (11) on the substrate, and then forming by writing (i.e. printing) the core layer there over wherein the core has a higher refractive index and is partially rounded in cross-section.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al.

With regard to claim 14, the waveguide core structure is formed by directly printing or embossing the structure on the substrate is well known in the art.

With regard to claim 17, forming a channel in the cladding layer, wherein the channel defines a lower portion of the core structure is well known in the art.

Allowable Subject Matter

6. Claims 1-10 is allowed.

The following is an examiner's statement of reasons for allowance: the claims are allowable over prior art of record, because none of the references in alone or in combination discloses:

+++ A method of forming an optical waveguide, comprising:

- (a) forming over a substrate a layer of a photodefinable composition;
- (b) exposing a portion of the layer to actinic radiation;
- (c) developing the exposed layer to form a waveguide core structure;
and
- (d) heating the waveguide core structure to a temperature and for a time effective to reflow the structure such that it becomes at least partially rounded in cross-section, as discloses in claim 1.

The underlined limitations is critically, since the waveguide having a core that is rounded and, more preferably, substantially circular in cross-section is desirable in order to improve light-transmission properties while reducing insertion loss due to optical fiber/waveguide coupling.

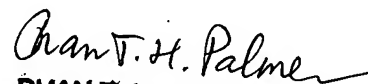
CONTACT INFORMATION

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHAN T.H. PALMER whose telephone number is (571) 272-2354. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RODNEY B. BOVERNICK can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PTHP
06/23/2005


PHAN T. H. PALMER
PRIMARY EXAMINER